108801

Date Out EFB: AUG 11 1980

To: Product Manager Stone (PM 23)
TS-767

From: Dr. Willa Garner
Chief, Review Section No. 1
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 100 - 597

Chemical: Metolachlor

Type Product: Herbicide

Product Name: Dual

Company Name: Ciba - Geigy

Submission Purpose: Review Dual + Dyanap tank mix soil dissipation data

ZBB Code: Other ACTION CODE: 306

Date in: 6/20/80 EFB # 497

Date Completed: AUG 11 1980

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

Post - Registration Action

This is a soil dissipation lab study of Dual plus Dyanap tank mix, submitted for review in support of past registration action. There is no previous EFB review of this specific mixture on file.

Dual contains the active ingredient Metolachlor; and Dyanap contains a combination of two active ingredients Naptalam and Dinoseb in a 2:1 ratio. The tank mix applications provide a broad spectrum of weed control in the production of soybeans to maximum use rates of 2.5 lbs. Dual/A and 4.5 lbs. Dyanap/A.

The greenhouse studies were conducted on Georgia sandy loam (pH:5.4, OM 2.9%) soil and on Mississippi silt loam (pH:6.4, OM 1.0%) soil types. Soils, in aluminum pails, were seeded with corn for activation period of 4 weeks, after which the top 3" of soil were removed and mixed with the appropriate chemical for: 1) a control; 2) an application of 2.5 lbs Dual/A; 3) an application of 2.5 lbs. Dyanap/A; 4) an application of 2.5 lbs Dual/A + 4.5 lbs Dyanap/A. The treated soils were sampled at a depth of 6" at 1, 15, 29, 57, 119 and 180 days following application.

Soil samples were extracted with water in methanol, filtred and the aliquot partitioned with hexane after dilution with water and prior to the clean up with deactivated alumina column for a final GC detection of Metolachlor residues. Limit of detection was 0.05 ppm.

The residue analysis (ppm) yielded the following results (the analysis was conducted by Uniroyal Chemical, Inc. Bethany, CT).

Georgia Soils	2.5 lb ai/A	4.5 lb ai/A		Dual 2.5 + Dyanay 4.5		
Interval (days)	Metolachlor	Naptalam	Dinoseb	Metolachlor	Naptalam	Dinoseb
1	1.60	1.38	0.57	1.20	3.47	0.46
29	0.45	0.62	0.29	0.55	0.36	0.30
119	0.15	0.57	<.10	0.29	0.34	<0.10
180	0.14	0.11	0.15	0.20	0.20	0.21

Mississippi Soil						
Intervals						
1	1.30	0.58	0.26	1.20	1.29	0.42
29	0.44	0.13	0.13	1.10	0.10	0.27
119	0.08	0.02	<0.01	0.29	0.09	0.12
180	<0.05	<0.01	<0.01	0.07	<0.01	0.01

Conclusion

1. Based on the reported results, the half-life of Metolachlor is 57.3 d when used alone, and 70.5 days when mixed with Dyanap in sandy loam soil. In silt loam soil, Metolachlor alone t 1/2 = 40.8 d, and 43.2 d when mixed with Dyanap.

2. The other two active ingredients also show a slight increase in their half-lives when mixed with metolachlor in the same soils.

	Naptalam		Dinoseb	
	Alone	In Mix	Alone	In Mix
Sandy Loam	64(d)	65.4(d)	100(d)	118(d)
Silt-Loam	45(d)	37.5(d)	1.1(d)	38.5(d)

3. Evident from this study that the use of Dual in combination with Dyanap will not significantly affect either the dissipation or the half-lives of their active ingredients.

4. Study is regarded acceptable and supportive of any registration action.

M N Nawar 8/11/80

Madeline Nawar
Review Section #1
August 1, 1980